Benefits and Risks of ICT in Early Years

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Early Childhood

- Early childhood: from birth (or “-9 months”) to 8 years
- Research shows that what happens in the prenatal and early years sets trajectories for lifelong health, learning and behaviour
- Child development is strongly affected by the quality of environment, particularly human interactions
- Children’s development is holistic: cognitive, linguistic, physical (motor), social and emotional development. Progress in one domain spurs or hinders development in other domains in a dynamic process.
- Developmental delays before age 6 are difficult to compensate
Windows of opportunities in early years
ICT in Early Years

“Except for some of the television work..., I have never seen messier research literature in my life, particularly regarding brains, behaviors, and video games.

Even a cursory review of the work that’s out there reveals shoddy designs, biased agendas, lack of controls, non-randomized cohorts, too-few sample sizes, too few experiments – and lots of loud, even angry, opinions.”

John Medina (2010) Brain Rules for Baby: How to Raise a Smart and Happy Child from Zero to Five
ICT in Early Years

• Research findings are sparse and remain divided

• In many countries, very young children are active users of ICT and internet
  ➢ RoK: 93% of 3-9 year olds go online for ave. 8-9 hours/week*
  ➢ USA: 25% of 3 year olds go online daily ⇒ 50% by 5 yrs and 70% by 8 yrs*

• Policy resources are typically directed to older children (particularly teenagers)

*Cited in Holloway et al. (2013) Zero to Eight: Young Children and their internet use
Media use by children younger than 2 years


- No evidence supporting educational or developmental benefits for media use
- Potential adverse health and developmental effects
- Adverse effects of parental media use (background media) on children

“Media – both foreground and background – have potentially negative effects and no known positive effects for children younger than 2 years”

“The AAP discourages media use by children younger than 2 years”
Potential risks of ICT

- Exposure to harmful contents
- Concerns about children’s learning and development
- New technologies displacing other important learning and play activities
- Protection of children’s privacy
- Physical and ergonomic safety
Physical and ergonomic safety: Risks

Musculoskeletal injuries

Visual strain and myopia

Obesity and other complications of a sedentary lifestyle

Possible risks of radiation exposure
Physical and ergonomic safety: Solutions

• Limit the time children spend at computer or other media
  Siraj-Blatchford and Siraj-Blatchford (2003) recommend children’s use of computers in short spells:
  ➢ No more than 10 to 20 minutes for 3-year-olds
  ➢ No more than 40 minutes by the age 8

• Provide appropriate furniture, lighting and ergonomic arrangement of equipment

• Teach children (and parents) risks and rules: should be part of their learning about ICT
Exposure to harmful contents

Critical evaluation, self-regulation and impulse control in children of this age are under-developed

• Violence and sexual content
  “Violent imagery has substantial short-term effects on arousal, thoughts, and emotions, increasing the likelihood of aggressive or fearful behavior in younger children, especially in boys.” (The Lancet, 2008)

• Commercial/advertising content
  “Young children under 8 years of age are developmentally unable to understand the intent of advertisements and, in fact, accept advertising claims as true.” (Glutz & Nielsen, 2002)

• Gender and cultural stereotypes
  Robust monitoring and supervision is required
Protection of children’s privacy

Young children do not understand the risk of exposing information and images online

- Parents generate a digital footprint of their children by writing blog and posting sharing images and videos without consent
- Many apps don’t disclose the company’s data collection and sharing practice; nor do they provide opt-out options easily

Parental guidance and monitoring is critical
Concerns about children’s learning and development

- “Death of childhood”? ⇒ often based on an ideological stand or nostalgia of adults’ own childhood
- Children’s isolation from social interaction ⇒ based on an image of a child playing a video game alone or working on closed, drill & practice software
- Displacing other important learning and play activities? ⇒ good practices integrate ICT across curriculum along with other kinds of activities

It depends on the adult’s role and the developmental appropriateness of the tool used
ICT can support learning and development

ICT are already in many children’s environment today and, *when used judiciously*, they can support different developmental domains:

- **Social-emotional**: encourage communication and collaboration
- **Cognitive**: assist in creativity, problem-solving and mathematical thinking
- **Language**: encourage linguistic development (speaking, listening, reading and writing)
- **Increase learning opportunities for children with SEN**
DATAC general principles
Developmentally appropriate technology in early childhood

1. Application should be educational: have clear learning aims but can be fun
2. Encouraging collaboration
3. Integration and play through ICT: ICT as tools for specific purposes and allow children to learn through play
4. The child should be in control (avoid programmed learning)
5. Applications should be transparent and intuitive
6. Application should not contain violence or stereotyping
7. Awareness of health and safety issues
8. The educational involvement of parents

Recommendations for Policy and Practice

• Set a clear vision and policy statement concerning the role of ICT in ECCE
• Develop instruments to initiate and support integration of ICT (e.g. ICT standards for ECCE teachers, curricular supplements, learning resources, collection of good practices)
• Focus on professional development of the teachers (highest priority) and foster leadership and collaboration within and between ECCE centres
• Respect safety concerns, gender and cultural diversity as well as developmental and cultural appropriateness
• Make safe and effective use of ICT part of parenting education and empower parents and caregivers to protect and support children

Adapted from UNESCO-IITE (2012). Policy Brief: ICTs in Early Childhood Care and Education